

March 27, 2007

**MEMORANDUM**

**TO:** Mr. Steve Murray, P.L.S. - Tippecanoe County Surveyor

**FROM:** David W. Eichelberger, P.E. - CBBEL, Indianapolis

**PROJECT:** **Campus Suites - Final  
CBBEL Project No. 02-038 (GD)**

**DEVELOPER/OWNER:** **Campus Suites, LLC**

**LOCATION:** **40° 28' 23" Latitude  
-86° 56' 48" Longitude**

**RECOMMENDATION:** **Final Approval with Conditions**

Approximately 20 acres of the existing Paramount Development property will be converted from predominantly grass fields to paved drives and parking areas serving nine (9) apartment buildings, a clubhouse, a maintenance building, and a mail kiosk. The project site is located north of U.S. 52 and Paramount Drive, west of Lakeshore Subdivision, and south of Hadley Lake in Wabash Township. The majority of the project site (13.34 acres) drains northerly to the Dempsey-Baker Regulated Drain and Hadley Lake while approximately 2.6 acres drain south to the Cuppy-McClure Regulated Drain. A proposed on-site detention pond will be constructed near the west property line at the downstream end of a natural drainageway that cuts northwesterly across the project site. In the extreme north portion of the project site, approximately 4 acres of floodplain area will remain undisturbed. The southwest corner of the site (approximately 1.7 acres) will drain in the proposed condition to an existing detention pond located on the adjoining property to the south of the subject development. The existing pond will be modified to include an additional emergency spillway to accommodate this additional drainage area. The applicant has submitted a letter from the adjoining property owner consenting to the use of the property and the proposed pond modifications.

This project was previously reviewed in preliminary approval memorandums dated December 19 and December 29, 2006. The Drainage Board granted Preliminary Approval of the proposed project with conditions at the January 3, 2007 meeting.

The proposed development will have a direct outlet to the Dempsey-Baker Regulated Drain and an indirect outlet to the Cuppy McClure Regulated Drain. There are no regulated drain crossings or encroachments proposed with this development. Runoff from the site eventually discharges to Hadley Lake. The project site is not within a 305(b) Priority Watershed but is located within the Tippecanoe County MS4 Area.

This project was previously reviewed in a memorandum dated March 1, 2007. After a review of the most recently provided information, CBBEL recommends final approval of the stormwater management plan with the following conditions:

### **Variances/Encroachments**

1. The applicant is requesting a variance from Chapter 5 of the Ordinance for post-construction stormwater quality treatment of runoff from two uncontrolled areas. The southwest corner of the project site (1.70 acres) is proposed to drain uncontrolled to the south to the Cuppy-McClure Regulated Drain. In addition, a small portion of the site (1.21 acres) along the north boundary of the construction area is proposed to drain uncontrolled to the north to the Dempsey-Baker Regulated Drain.

For the area in the southwest corner that is tributary to Cuppy-McClure Regulated Drain, the applicant will install a filter strip downstream of the paved area to provide approximately 48% TSS removal. The area along the north boundary that is draining to the Dempsey-Baker Regulated Drain will drain to the north without additional treatment. The applicant has indicated that this runoff will receive treatment from the existing wooded area between the buildings and the Dempsey-Baker Regulated Drain. The applicant has provided a TSS removal rate of 94% in other portions of the development to compensate. The resulting weighted average TSS removal rate for the entire site is 77%.

2. The applicant is requesting a variance from Chapter 3 of the Ordinance for building pad elevations adjacent to emergency stormwater overflow paths. The Ordinance requires that building pads have a minimum freeboard of 1 foot above the anticipated overflow elevations from a 100-year storm event. Some of the proposed building pads will be as low as 0.6 feet above the adjacent emergency flow path elevations. Some of the finished floor elevations will be as low as 1.25 feet above the adjacent emergency flow path elevations. The applicant cannot meet this requirement for all of the buildings due to handicap accessibility constraints. The applicant has indicated that the first floor elevations are 8 inches higher than the pad elevations, and contends that the proposed project should meet the intent of the Ordinance.

### **Stormwater Quantity**

1. The applicant is requesting an exemption from Chapter 3 of the Ordinance regarding the storage and controlled release of stormwater runoff from the southwest corner of the project site (approximately 1.70 acres). This portion of the site will drain to the south, to Hadley Lake via the Cuppy-McClure Regulated Drain. Stormwater runoff will drain to an existing detention pond on the adjoining property to the south of the subject development before reaching the Cuppy-McClure Regulated Drain. An additional emergency spillway will be constructed at the existing pond to accommodate the increased drainage area. The applicant has submitted a letter from the adjoining property owner consenting to the use of the adjoining property and to the necessary modifications to the existing detention pond. The submitted drainage report also indicates stormwater discharges and runoff volumes at the property boundary will be reduced for the peak 2-year, 10-year, and 100-year storm events. Moreover, as previously noted, the applicant will install a filter strip that not only provides some water quality treatment benefit, but reduces initial flow velocities by conveying runoff within a flat, broad, grassed pathway prior to leaving the project site. The building downspouts will flow to underground drains that will allow runoff to flow evenly over the grassed area. Therefore, it appears that the exemption criteria listed under Chapter 3, Section 2.A.iii.c. of the Ordinance will be met.

2. The applicant should revise the rip rap installation detail on sheet 15 of the construction plans to indicate that grout will be used “where required” instead of “where applicable”.
3. The applicant should review the proposed grading and drainage along the west property line. The construction plans should clearly indicate if curb turn-outs are proposed along the west edge of the parking lot between buildings 1 and 5. There does not appear to be a defined swale proposed along the west property line immediately west of the parking lot between buildings 1 and 5. It appears that stormwater runoff would flow to the property west of the subject development, and not to the detention pond. It also appears that the proposed swale immediately west of building 6 is not deep enough to contain flows on-site.
4. The applicant should review the proposed grading along the south property line near BH1. The proposed contours in this area do not appear to tie in to existing contour lines, and it appears that stormwater runoff would flow to the south before flowing north.
5. The emergency spillway sizing calculations should be checked. Based on the broad crested weir equation the proposed weirs do not have the required capacity.
6. The storm sewer STM-7 does not have the required cover over the downstream end.
7. A copy of the final plat for Campus Suites should be provided when available.
8. The lowest pad and finished floor elevations for CI-3 and Structure 9 shown on the Emergency Overflow Table on Sheet 12 need to be revised.
9. The applicant has indicated that stormwater quantity comment #20 of the March 1, 2007 memorandum has been addressed. However, the calculations noted in the response letter were not included.
10. The applicant has provided information indicating that the storm sewers from structure 12 and CI 4 have adequate capacity to convey the 100-year frequency runoff to the detention pond, with emergency routing for less frequent storms flowing to the north. However, the applicant should still provide inlet capacity calculations to verify that the proposed inlets are adequately sized to convey the 100-year frequency runoff.
11. The applicant should include small culverts or a small bridge over a swale under the proposed sidewalks between buildings 7 and 8, so that the emergency flow path elevation from the BH2 area can be reduced to around 665.0.

### **Stormwater Quality**

1. Item A9 of the Stormwater Pollution Prevention Plan (SWPPP) on sheet 14 of the construction plans should be revised to indicate that stormwater will leave the site from the proposed dry detention pond for the site, then to Hadley Lake
2. The Operations and Maintenance (O&M) Manual should include sediment depth removal guidelines.

3. The applicant has submitted a "Recorded Master Covenant and Agreement Regarding On-Site BMP Maintenance and Drainage". This agreement must be recorded before final plan approval and sign-off will be granted by the Tippecanoe County Surveyor's Office.

### **General Conditions**

1. The applicant must present the project at the Tippecanoe County Drainage Board meeting for the project to be considered for approval.
2. The applicant must pay any final drainage review fees per Ordinance 2005-04-CM and submit a letter to the County Surveyor's Office stating that these fees will be paid.
3. The applicant must pay the Phase II stormwater program fees.
4. If no assurance is required under the Unified Subdivision Ordinance, Section 4.1, the Comprehensive Stormwater Management Ordinance of Tippecanoe County (Ordinance) still requires an assurance, made out to the Tippecanoe County Drainage Board, for an amount equal to 100% of the total costs of implementing measures required by Chapters 3, 4, and 5 of the Ordinance. See Chapter 6, Section 7 of the Ordinance for more information.
5. The property owner, developer, or contractor shall be required to file a three-year maintenance bond or other acceptable guarantee with the Tippecanoe County Drainage Board, prior to final approval, in an amount not to exceed ten percent (10%) of the cost of the stormwater drainage system located outside the public road right-of-ways. See Chapter 6, Section 9 of the Ordinance for more information.
6. All listed issues must be completely addressed before final plan approval and sign-off will be granted by the County Surveyor's Office.

No error or omission in either the plans, calculations or applications (whether said plans, calculations or applications have been reviewed by the review engineer or not) shall permit or release the applicant and designer from constructing this work in any other manner than that provided for in the County Ordinance.

pc: Vester and Associates, Inc.

DWE/dea

M02-038GD2.DOC